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Barry R Smith* (barsmith@lvc.edu), 101 N. College Ave, Annville, PA 17003. *Indefinite forms, continued fractions, and binary necklaces*. Preliminary report.

We will give a construction that uses a continued fraction expansion to attach a binary necklace to each class of indefinite binary quadratic forms. We give three applications of the necklace invariant. (1) We show that two types of necklace symmetry translate into natural statements about the situation of the corresponding forms in the class group. (2) We describe how moving down the famous Markoff tree of forms corresponds to concatenation of the corresponding strings. (3) We classify forms of the types $ax^2 + (ab + 2)xy + by^2$ and $ax^2 + (2ab + 1)xy + by^2$ having orders 1, 2, 3, 4, or ≥ 5 in the class group. In particular, a form has order 4 if and only if a continued fraction built from a and b has a very specific pattern of partial quotients. (Received August 01, 2016)